AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application:

1-14. (Canceled).

15. (Currently Amended) A method of characterising a treatment applied to a population of cells, comprising:

providing a population of cells;

applying a treatment to the population of cells;

deriving a plurality of cellular features from at least a first captured image of the population of treated cells ~~that have been exposed to the treatment~~;

creating an on-target effect signature, which is characteristic of an on-target effect of the treatment on the population of treated cells, from at least a first one of the plurality of cellular features, the at least one of the plurality of features relating to cellular properties involved in the on-target effect;

creating a side effect signature, which is characteristic of a side effect to the on-target effect of the treatment on the population of treated cells, from at least a second one of the plurality of cellular features, the second one of the plurality of cellular features relating to cellular properties not being involved in the on-target effect;

creating an on-target effect metric derived from the on-target effect signature;

creating a side effect metric derived from the side effect signature; [[and]]

comparing the on-target effect metric to the side effect metric to derive a ratio of on-target effect metric to side effect metric to thereby characterize the treatment;

and providing the ratio for a user.

16. (Original) The method as claimed in claim 15, wherein the on-target effect signature is created from a group of cellular features.

17. (Original) The method as claimed in claim 16, wherein the side effect signature is created from a further group of cellular features, in which none of the members of the group of cellular features used to create the on-target effect signature and the members of the further group of cellular features used to created the side effect signature are common.

18. (Original) The method as claimed in claim 15, wherein the second one of the plurality of cellular features is affected by the treatment.

19. (Original) The method as claimed in claim 18, further comprising:

exposing different populations of cells to different doses of the treatment; and

deriving the on-target effect metric and the side effect metric for different doses of the treatment.

20. (Previously Presented) The method as claimed in claim 15, wherein deriving one or both of the on-target effect metric and the side effect metric includes determining the difference between the on-target effect signature or side effect signature and a control signature from the same cellular features for a control group of cells.

21. (Original) The method as claimed in claim 15, and further comprising:

capturing at least a first image of a control group of cells; and

deriving a plurality of cellular features from the image of the control group of cells;

creating a control on-target signature for the same cellular features for the control group; and

creating a control side effect signature for the same cellular features for the control group.

22. (Original) The method of claim 21, further comprising determining a side effect distance in a multivariate space between the side effect signature and the control side effect signature.

23. (Original) The method of claim 22, further comprising determining a target effect distance in a multivariate space between the on-target effect signature and the control on-target effect signature.

24. (Previously Presented) The method of claim 23, wherein characterising the treatment is based on the side effect distance.

25. (Previously Presented) The method of claim 24, wherein characterising the treatment is also based on the on-target effect distance.

26. (Original) The method as claimed in claim 25, further comprising generating a graphical representation of the side effect distance and on-target effect distance.